PUBLIC WORKS AND
UTILITIES DEPARTMENT

MEMORANDUM

Date: April 24, 2003

To: Steve Henrichsen

From: Nicole Fleck-Tooze

Subject: ***2003 Annual Review of the Comprehensive Plan Watershed Management Comments***

cc: Allan Abbott, Ben Higgins, Devin Biesecker - PW/U Dept.
Dale Stertz - Building and Safety Dept.
Glenn Johnson, Ed Ubben, JB Dixon - Lower Plate South NRD

Amendment #4 – Southeast Upper Salt Creek (SEUSC) Watershed Master Plan

The Southeast Upper Salt Creek Watershed (SEUSC) Master Plan is proposed for adoption as an approved subarea plan of the Comprehensive Plan by the Public Works and Utilities Department and the Lower Platte South Natural Resources District (NRD). The Comprehensive Plan includes the following strategies:

> ***Develop a Watershed Management Master Plan for Lincoln*** *and its future growth areas. Integrate existing neighborhoods and growth areas into watershed planning.*
>
> *Utilize basin master plan* ***recommendations and components as analysis tools*** *to be referenced and compared with proposed development within the basin, and as a guide in the preparation of future capital improvement projects.*
>
> ***Future master planning efforts*** *for largely undeveloped basins will rely more heavily on pro-active better management practice (BMP) measures and the* ***conservation of existing natural drainage features*** *to most effectively manage stormwater and floodplains. Designs of human made features should* ***seek to utilize bioengineering and other naturalized techniques,*** *incorporating trail systems and other linear park features where possible.*

The SEUSC Master Plan covers the urban planning zones designated S-1, S-2, S-3, and a portion of S-5. The completion of the SEUSC Master Plan is the second step toward the development of a Watershed Management Master Plan for Lincoln and its future growth areas. This is a phased, multi-year project which is being completed basin by basin, and will ultimately be integrated into a comprehensive, unified Master Plan. The first step in the process was the

completion and adoption of the Beal Slough Stormwater Master Plan, which is now identified as an approved subarea plan of the Comprehensive Plan.

Watershed master planning is important to identify needs for stormwater and floodplain management prior to future development, to provide a database of watershed information and a computer modeling system to be used as analysis tools, and to identify capital projects needed to address flood control, water quality, or stream stability issues in the watershed. Project components and recommendations are intended to be referenced during the review of development proposals and evaluated relative to their impact on the watershed. Master planning provides the opportunity to identify and reserve regional detention sites during early planning stages in advance of development. Master planning and the performance and adequacy of stormwater storage basins to prevent increases in peak flows will require continued assessment with the growth of the City, and upstream flood storage is critical to preventing further increases to the floodplain.

The SEUSC Master Plan watershed master plan evolved from a public process led by the City of Lincoln Public Works and Utilities Department and the Lower Platte South Natural Resource District. This process included four open houses and multiple meetings with land owners that were used to present findings, gather input, and receive feedback on proposed master plan components. Open houses were held on March 26, 2001; June 4, 2002; July 25, 2002; and October 10, 2002. Water quality, stream stability, and flooding were three of the major topics addressed in the analysis and at the public meetings:

Stormwater Quality

The City is responsible for developing programs and projects to protect the quality of stormwater runoff and meet federal regulations for water quality under the National Pollutant Elimination System (NPDES) Permit issued to the City by the State of Nebraska. Projected pollutants from future urban runoff in the Southeast Upper Salt Creek Watershed include sediment, nutrients such as nitrogen and phosphorus, heavy metals, and bacteria. Future conditions are also projected increase stream bank erosion unless sufficient riparian buffers are established or preserved to filter pollutants from adjacent land uses and flow increases are mitigated.

Stream Stability

Some channel bed erosion and bank sloughing is evident in selected locations within the watershed. However, erosion caused by increased flow rates and increase occurrence of bankfull conditions due to projected development is projected to increase if not adequately addressed. Channel velocities and depth of flow are projected to increase with loss of floodplain storage, aggravating or instigating new channel stability problems in affected reaches.

Flooding Along Streams and Channels

There are flood hazard concerns that will increase in the watershed unless master plan components are implemented that mitigate the effects of projected development. Currently, nine houses and several empty lots are in or near the 100-year floodprone area. As the basin develops, flow rates will increase for major storm events if floodplain storage is lost, increasing flood

heights by 3-5 feet in the area between the BNSF Railraod and 40th Street.

Evaluation of Alternative Concepts

The SEUSC Watershed Master Plan examined two alternative concepts to address stormwater quality, stream stability, and flooding along streams:

Concept Plan A

Concept Plan A, which is reflected in the master plan and is the preferred concept, includes the preservation of the 100 year floodplain through the purchase of conservation easements below South 70th Street to Salt Creek. This concept also includes constructed wetlands to remove urban pollutants, detention facilities, and the use of bioengineering approaches to improve stream stability. Concept Plan A is estimated to cost $8,425,000 to implement.

Concept Plan B

Concept Plan B was considered as an alternative during the evaluation process, and was not selected. It included the preservation of a smaller flood corridor and the construction of a regional detention facility west of South 40th Street. The plan also included other detention facilities, water quality wetlands, and bioengineering approaches to improve stream stability. Concept Plan B was estimated to cost $12,082,000 to implement. The loss of 100-year floodplain areas outside of a 400-foot flood corridor identified with this concept would require an additional $3.7 million to meet the water quality goals established for this watershed. Thus, Concept Plan B would only be acceptable if private development were to complete the water quality improvements needed to offset the impacts to water quality caused by development.

The SEUSC Watershed Master Plan recommended for adoption reflects Concept Plan A. While the cost of implementing the Master Plan will be significant, the up-front costs are much less than the future costs of stream degradation, increased flooding, and water quality degradation if the measures identified in the Plan are not taken. The proposed Master Plan allows for the protection of the 100-year floodplain and the construction of water quality wetlands in the lower portion of the subbasins. In doing so, the proposed Plan meets all of the stormwater management goals established for this watershed at a significantly lower cost than the alternative concept. The adoption of the SEUSC Watershed Master Plan as an approved component of the subarea plan is an important first step in its implementation. The Plan is anticipated to be implemented over a period of time with a combination of local funding (City and NRD), public/private partnerships, as well as state, federal and other grant resources. An approved Master Plan is the foundation needed to advance with funding alternatives.

Amendment #8 - 84th and Havelock Avenue

This area is in the floodplain of Stevens Creek and a portion of it is designated as Green Space in the Lincoln/Lancaster County Comprehensive Plan. An important floodplain management strategy embodied in the Comprehensive Plan is to designate areas for future urban

development outside of the floodplain to avoid introducing new development to flood risks and to preserve the important functions of the floodplain. In keeping with this concept and the Salt Valley Heritage Greenway identified along this corridor, the floodplain along Stevens Creek is designated as Green Space and Environmental Resources on the in order to preserve the natural functions of the floodplain, including flood storage and conveyance. The recommendations of the Mayor's Floodplain Task Force are consistent with this approach.

Some fill within the floodplain on this site may already be occurring, however, our understanding is that a floodplain fill permit for this site has not yet been approved by the Building and Safety Department. A master plan of the site was submitted subsequent to the original proposal showing further development within the floodplain outside the area of the amendment, and parking and roads within the floodway. In addition to the existing 'No Rise' standard within the floodway, the Mayor's Floodplain Task Force has recommended a No Net Rise/Compensatory Storage standard for the floodplain in new growth areas. There are opportunities on this site to compensate for fill or buildings in the floodplain in order to meet the proposed standard, as well as other Task Force recommendations such as encouraging the use of 'best management practices' to protect water quality and other natural functions of the floodplain. However, no grading and drainage plan was submitted with the master plan and none of the information submitted suggested that steps would be taken to minimize impacts on the floodplain.

The Comprehensive Plan designates the floodplain in the area of the proposed amendment as 'Green Space' in order to preserve the natural functions. Consideration for changing the land use designation to commercial use should not be given without a master plan that identifies how impacts to these floodplain functions will be addressed and mitigated comprehensively on the site, including how the impacts of fill for the commercial area would be offset elsewhere on the site.

Amendment #10 - N. 14th to 27th & Alvo Road

The northeast portion of this site is in the floodplain of Little Salt Creek and has been identified as an environmental resource in the Lincoln/Lancaster County Comprehensive Plan. There are NWI freshwater wetlands and previously identified farmed wetlands in the northeast portion of the site. The current Environmental Resources land use designation in the northeast area of this site reflects the 500-foot buffer area identified by the Mayor for the protection of the saline wetlands and Salt Creek Tiger Beetle habitat. Stormwater runoff from this site has the potential to have greater adverse impacts on saline wetlands downstream of this site without the buffer area in place.

Amendment #11 - 98th and O Street

The City and the Lower Platte South NRD have recently selected a consultant to complete a Watershed Master Plan for Stevens Creek. The completion and adoption of the

master plan is anticipated to be a 2-year process. The Master Plan will provide a database of watershed information and a computer modeling system that will be used by the City and NRD to evaluate and guide future urban development within the watershed. It will identify important conservation features and capital projects for flood storage, water quality, and stream stability. The watershed plan will allow the impacts of individual developments to be evaluated based upon a comprehensive model of existing and future conditions in the basin. There is the potential for the loss of important watershed opportunities The advancement of development in the basin prior to the completion of the plan makes it difficult to evaluate impacts and provide meaningful guidance with regard to watershed management, and there is the potential to miss project opportunities.

This area includes a large tributary of Stevens Creek. The tributary drains approximately 1,500 acres near the downstream limit of the proposed amendment. The stream does not currently have a FEMA mapped floodplain or floodway, but would be anticipated to be mapped with the upcoming Stevens Creek Watershed Master Plan. Any development in this area would also be required to preserve riparian vegetation in conformance with the City of Lincoln's 'minimum flood corridor' standard. This would include the stream that is located in the proposed commercial area near 'O' Street.

98th Street is currently unimproved. A new road on this alignment would require at least two stream crossings (bridges or large culverts) which would be anticipated to add considerable cost to road construction.

Amendment #12 - S. 66th and Highway 2

This site is within one of four subareas identified in the Beal Slough Stormwater Master Plan for the implementation of regional stormwater retention. Initially, a large stormwater retention facility was pursued on the Country Meadows outlot which would also have required land area from this site. After a more detailed analysis of this site it was found that stormwater detention required for any new development at this location would be sufficient to provide for target flows along Beal Slough. Thus, in lieu of a large retention basin, we are in the midst of discussions with the Country Meadows neighborhood about the creation of water quality wetlands on their outlot to the south. These could be constructed with or without the road connection identified between Country Meadows and the Apple's Way site. However, we must know whether the connection will be there prior to constructing the wetlands. In addition to the potential public project on the Country Meadows outlot, Tom Huston has indicated an interest on the part of the developer for Apple's Way to provide water quality measures that exceed minimum requirements on that site, and we would fully support such measures.

Amendment #13 - Highway 2 and Pine Lake Road

It appears there may be a significant wetland area along the drainageway through this site. There is a narrow band of Green Space designation shown generally along the drainageway on the current Land Use Plan. An Environmental Resources designation that approximates the wetlands through the drainage area would be more appropriate than designating the entire site for commercial land use.

This area lies below the dam for Pine Lake. Currently the Pine Lake dam is classified as a significant hazard dam. Development downstream of the dam could cause the dam to be reclassified as a high hazard dam, which would require the owner of the dam to make the appropriate improvements to meet this classification. Improvements of this magnitude would be costly. Although development has already occurred further downstream, any development in this area should be closely scrutinized to save future cost to the dam owner and to minimize risk to the public.

For your information, we have included Dam Hazard Classification from the Department of Natural Resources as well as the Department's comments regarding Edenton Woods, also downstream of the dam site. However, we highly recommend the initiation of a meeting with Brian Dunnigan of DNR to further clarify these rules relative to future land use downstream of the dam:

Nebraska Department of Natural Resources Surface Water Rules:

Chapter 19 - DAM HAZARD CLASSIFICATION

001 DEFINITIONS. Dam hazard classification is determined according to the potential for loss of life and property damage which would occur should a dam fail. The following dam classes are defined accordingly.

001.01 High Hazard Dam. A dam located where failure may cause loss of life, or serious damage to homes, normally occupied industrial and commercial buildings, important public utilities, main highways, or major railroads.

001.02 Significant Hazard Dam. A dam located in areas where failure may damage isolated homes, occasionally occupied buildings, main highways, minor railroads or interrupt public utility use or service.

001.03 Low Hazard Dam. A dam located in areas where failure may damage normally unoccupied buildings, undeveloped land, or township and county roads.

ANNOTATION

ENABLING LEGISLATION:
Section 46-209, R.R.S., Nebraska, 1943
Section 46-257, R.R.S., Nebraska, 1943
Section 46-241, R.R.S., Nebraska, 1943
Section 46-277, R.R.S., Nebraska, 1943
Section 46-278, R.R.S., Nebraska, 1943

Text taken from Nebraska Department of Natural Resources website (http://www.nrc.state.ne.us/docs/damsafety.html)

Dam Safety

The Nebraska Department of Natural Resources reviews and approves engineering drawings for new dams, including livestock waste storage structures created by a dam, for rehabilitation of old dams and reviews emergency preparedness plans for all dams classified as high hazard. An inventory of all dams under the Department's jurisdiction is currently maintained as well as a schedule of field safety inspections of these dams. Owners are notified by letter of defects and deficiencies found during field safety inspections with recommended actions or directions for repair. The Department can exercise legal authority to require owners of dams to take necessary action to correct deficiencies and defects in order that a dam be operated and maintained in a safe condition.

Comments from the Nebraska Department of Natural Resources that were included with the Planning Departments requirements for Preliminary Plat #02023 (Edenton Woods). 11/13/2002:

Due to the proximity of the Pine Lake dam structure, the Nebraska Department of Natural Resources (DNR) reviewed this application. Consistent with that review, you must provide an analysis showing the downstream area that would be impacted by a breach of the dam. When you have provided this information, DNR will be requested to review it. You will be required to satisfy any conditions stipulated by DNR, including prohibiting the development of habitable structures in the impact area, and providing flowage easements to accommodate discharge from the spillway.

Subsequent to a meeting held on March 31, 2003 which included representatives from the Department of Natural Resources, it was determined that until a breach analysis is completed for the Pine Lake dam, decisions should not be made on the type and location of development downstream. Our understanding is that a breach analysis for the Pine Lake dam is currently being conducted by engineers for the Edenton Woods preliminary plat and will be made available upon completion.

Amendment #16 - N. 70th and Arbor Road

The Resource Categorization of Nebraska Eastern Saline Wetlands maps identifies the wetland in this area as a Category II saline wetland (degraded saline wetland). The Comprehensive Plan designates the land use for the wetlands plus a 500-foot buffer as Environmental Resources.

The applicant has submitted two expired 404 permits for the wetland which identify the wetlands as Category III (freshwater wetlands on saline soils) and Category IV (freshwater wetlands). It appears that no floodplain fill permit has been issued for the wetlands portion of the site. It is not clear whether the fill and mitigation work in the wetlands has already been

completed. Thus, it is also unclear if the applicant's statement that "the current Comprehensive Plan did not have accurate information regarding the locations of wetlands on the parcel" reflects the location of the existing wetlands or wetlands that may already have been filled and mitigated.

The Comprehensive Plan identifies freshwater wetlands as environmental resource features that provide important water quality and habitat functions. Freshwater and saline wetlands are also one of three Core Resource Imperatives Thus, the environmental resource designation is appropriate whether the wetlands are freshwater or saline. If a wetlands delineation has been performed and it identifies better information showing a refined location for the wetlands, the delineation should be submitted to document this. The hand-drawn site plan submitted with the application is not a wetland delineation.

Additional information was received by this department today relative to the status of the wetlands on the site. Further time is needed for review of these items.

Amendment #19 - Homestead Expressway and Warlick Blvd.

A relatively small area along the eastern portion of this site is within the 100-year floodplain of Salt Creek. The land use in this area is designated "agricultural stream corridor" in the Lincoln/Lancaster County Comprehensive Plan. This land is intended to remain in open space that is predominantly agricultural, but that may include parks, recreation fields, or parking areas when near future commercial, industrial, or public uses. The location and size of the area designated as agricultural stream corridor should provide flexibility in the development of the site without a change in land use within the Salt Creek floodplain. Our recommendation is that the land use designation for the floodplain area remain unchanged.

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